

## IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for the preparation of an aqueous polymer dispersion by free radical aqueous emulsion polymerization ~~of comprising polymerizing~~ at least one ethylenically unsaturated compound (monomer) in the presence of at least one dispersant, wherein

- a) ~~in~~ into a reaction vessel at a temperature which is less than or equal to the starting reaction temperature  $T_s$ ,
  - a<sub>1</sub>) at least one portion of demineralized water,
  - a<sub>2</sub>) at least one portion of at least one oil-soluble free radical initiator,
  - a<sub>3</sub>) at least one portion of at least one dispersant,
  - a<sub>4</sub>) ~~if appropriate~~ optionally, a portion of the at least one monomer and
  - a<sub>5</sub>) ~~if appropriate~~ optionally, a portion of at least one water-soluble free radical initiator are initially ~~taken~~ added to form a reaction mixture in the reaction vessel, thereafter
- b) the reaction mixture obtained is, ~~if appropriate~~ optionally, heated to the starting reaction temperature  $T_s$ , and thereafter
- c) the following are metered into the reaction mixture:
  - c<sub>1</sub>) ~~if appropriate~~ optionally, the remaining amount of demineralized water,
  - c<sub>2</sub>) ~~if appropriate~~ optionally, the remaining amount of the at least one oil-soluble free radical initiator,
  - c<sub>3</sub>) ~~if appropriate~~ optionally, the remaining amount of the at least one dispersant,
  - c<sub>4</sub>) the total amount or, ~~if appropriate~~ optionally, the remaining amount of the at least one monomer and
  - c<sub>5</sub>) the main amount of the at least one water-soluble free radical initiator, and

- d) the reaction mixture is heated to an end reaction temperature  $T_E$  during the metering of the at least one monomer, and wherein

the at least one water-soluble free radical initiator has ~~initiators being understood as meaning those which have~~ a solubility of  $\geq 1\%$  by weight at  $20^\circ\text{C}$  and atmospheric pressure in demineralized water, ~~while~~ and the at least one oil-soluble free radical ~~initiators being understood as meaning those which have~~ initiator has a solubility of  $< 1\%$  by weight under the abovementioned conditions and the total amount of water being such that the aqueous polymer dispersion obtained has a solids content of from 20 to 70% by weight.

Claim 2 (Original): The process according to claim 1, wherein the at least one water-soluble free radical initiator initiates a free radical polymerization reaction of the at least one monomer at the starting reaction temperature  $T_S$ .

Claim 3 (Currently Amended): The process according to ~~either of claims 1 and 2~~ Claim 1, wherein the at least one oil-soluble free radical initiator has a half-life of  $\geq 10$  hours at the starting reaction temperature  $T_S$  and a half-life of  $\leq 5$  hours at the end reaction temperature  $T_E$ .

Claim 4 (Currently Amended): The process according to ~~any of claims 1 to 3~~ Claim 1, wherein  $T_E \geq T_S + 10^\circ\text{C}$ .

Claim 5 (Currently Amended): The process according to ~~any of claims 1 to 4~~ Claim 1, wherein  $T_S$  is from  $\geq 30$  to  $\leq 120^\circ\text{C}$  and  $T_E$  is from  $\geq 80$  to  $\leq 200^\circ\text{C}$ .

Claim 6 (Currently Amended): The process according to ~~any of claims 1 to 5~~ Claim 1, wherein the amount of water-soluble and oil-soluble free radical initiator is in each case from 0.01 to 5% by weight, based on the total amount of monomer.

Claim 7 (Currently Amended): The process according to ~~any of claims 1 to 6~~ Claim 1, wherein the pressure during the polymerization is chosen so that the reaction mixture does not boil at any time.

Claim 8 (Currently Amended): The process according to ~~any of claims 1 to 7~~ Claim 1, wherein the at least one water-soluble free radical initiator used is a mono- or di-alkali metal or ammonium salt of peroxodisulfuric acid.

Claim 9 (Currently Amended): The process according to ~~any of claims 1 to 8~~ Claim 1, wherein the at least one oil-soluble free radical initiator used is ~~[[a]]~~ at least one compound selected from the group consisting of tert-butyl peroxy-2-ethylhexanoate (Trigonox<sup>®</sup> 21), tert-amyl peroxy-2-ethylhexanoate, tert-butyl peroxybenzoate (Trigonox<sup>®</sup> C), tert-amyl peroxybenzoate, tert-butyl peroxyacetate, tert-butyl peroxy-3,5,5-trimethylhexanoate (Trigonox<sup>®</sup> 42 S), tert-butyl peroxyisobutanoate, tert-butyl peroxydiethylacetate, tert-butyl peroxy-pivalate, tert-butyl peroxyisopropylcarbonate, (Trigonox<sup>®</sup> BPIC) and tert-butyl peroxy-2-ethylhexylcarbonate (Trigonox<sup>®</sup> 117).

Claim 10 (Currently Amended): The process according to ~~any of claims 1 to 9~~ Claim 1, wherein the reaction mixture is kept at the end reaction temperature  $T_E$  for at least a further 30 minutes after the end of the monomer metering.

Claim 11 (Currently Amended): The process according to ~~any of claims 1 to 10~~ Claim 1, wherein the reaction mixture is stripped with inert gas and/or steam after the end of the monomer metering.